MARKER CODE				

STUDENT ENROLMENT NUMBER (SEN)									

TONGA NATIONAL FORM SEVEN CERTIFICATE

2024

COMPUTING AND ICT

QUESTION AND ANSWER BOOKLET

Time allowed: 2 Hours

INSTRUCTIONS:

1. Write your **Student Enrolment Number (SEN)** on the top right-hand corner of this page.
2. This paper consists of **NINE SECTIONS** and is out of 70 weighted scores.

SECTION	STRANDS	TOTAL SKILL LEVEL
ONE	FUTURE TRENDS IN ICT	7
TWO	INFORMATION SYSTEMS (IS)	6
THREE	ICT INFRASTRUCTURE	8
FOUR	DIGITAL DESIGN	14
FIVE	COMPUTER PROGRAMMING	8
SIX	MICROPROCESSOR PROGRAMMING	8
SEVEN	SAFE PRACTICES IN ICT	8
EIGHT	SOCIAL ISSUES	5
NINE	ENVIRONMENTAL ISSUES	6
	TOTAL	70

3. Answer ALL QUESTIONS. Write your answers in the spaces provided in this booklet.
4. Use a **BLUE** or **BLACK** ball point pen only for writing. Use a pencil for drawing if required.
5. If you need more space for answers, ask the supervisor for extra paper. Write your **Student Enrolment Number (SEN)** on each additional sheet, number the questions clearly and insert them in the appropriate places in this booklet.
6. Check that this booklet contain pages 2-15 in the correct order and that page 15 has been deliberately left blank.

YOU MUST HAND IN THIS BOOKLET TO THE SUPERVISOR BEFORE YOU LEAVE THE EXAMINATION ROOM.

SECTION ONE: FUTURE TRENDS IN ICT

The future of Information and Communication Technology (ICT) is set to bring big changes around the world, affecting both large and small countries. As technology keeps advancing quickly, small island nations like Tonga will also feel the impact, but the fast pace of change might raise concerns that needs careful thought and planning.

1. Discuss some of the key changes required for Tonga to be ready for future ICT trends.

Skill level 4	
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2. Explain the concerns that might arise in Tonga due to future trends in ICT.

Skill level 3	
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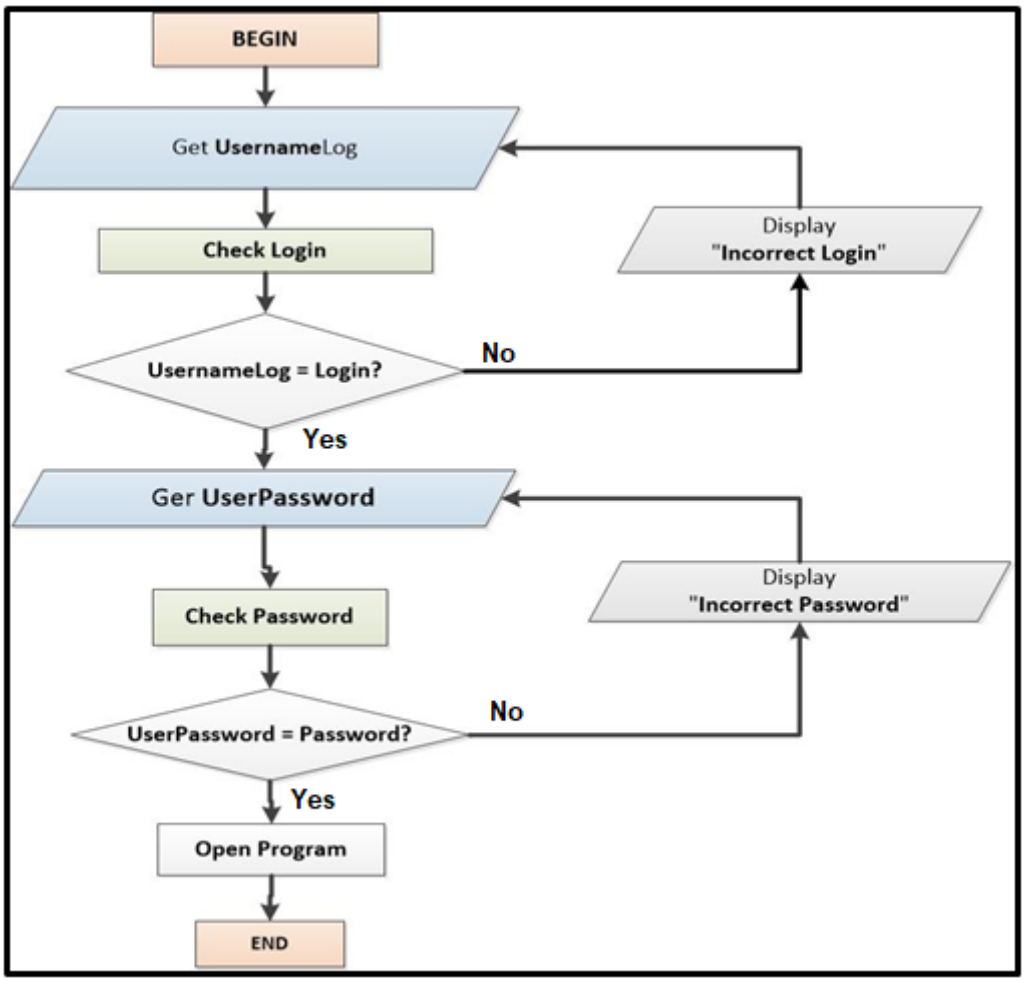
SECTION TWO: INFORMATION SYSTEMS (IS)

Information systems (IS) are essential for managing data and processes in organizations. To use IS effectively, well-organized workflows as hinted by the flowchart below is needed. Experience with IS offers many benefits but also comes with concerns when setting up and using these systems.



A flowchart showing how a workflow for login to an Information System

1. Outline the relationships between a workflow and an Information System (IS).

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Skill level 2	
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2. Identify a major concern when implementing IS applications in Pacific Island Countries (PIC).

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Skill level 1	
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3. Explain the benefits of IS experiences in key sectors such as in Education.

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Skill level 3	
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SECTION THREE: ICT INFRASTRUCTURE

1. Information Communication Telecommunication Infrastructure are essential for modern communication using devices like wireless networks and routers. Choosing the right software, whether open source or paid, is key to making the system reliable and secure.
   Draw a simple diagram of an ICT/IT infrastructure showing its main components.

Skill level 2	
2	
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2. Wireless networks have become the most widely used type of network for both small and large businesses due to their significant features.

Outline some of the significant features of wireless networks.

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Skill level 2	
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3. Choosing the right software is key to your business's success and efficiency. It's important to consider whether open source or proprietary software best fits your needs.

i. Name a proprietary software that is commonly used in schools, such as your own.

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Skill level 1	
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ii. Explain the software choice of an organisation between using open-source software and proprietary software.

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Skill level 3	
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SECTION FOUR: DIGITAL DESIGN

Digital design is the creation of visual content using digital tools to share ideas and improve user experiences, such as graphics and webpages.

1. Outline the main graphic design requirements for your school website.

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Skill level 2	
2	
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2. Given below is a section of a CSS file for a student's website, designed for her internal assessment.

```
/* Style for the title */
h1 {
    color: #333333; /* Dark grey color for the title */
    font-family: 'Arial', sans-serif; /* Font type for the title */
    font-size: 6cm; /* Font size for the title */
    text-align: center; /* Center-align the title */
    margin-top: 2cm; /* Space above the title */
}

/* Style for the body */
body {
    color: #666666; /* Light grey color for text */
    font-family: 'Verdana', sans-serif; /* Font type for the body text */
    font-size: 1.6cm; /* Font size for the body text */
    background-color: #f0f0f0; /* Light grey background color */
    margin: 0; /* Remove default margin */
    padding: 2cm; /* Padding around the body content */
}
```

i. Define CSS.

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Skill level 1	
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ii. Outline the main benefits of using CSS in web design.

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Skill level 2	
2	
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3. Web-driven databases are essential for all companies and businesses today. Outline the key components involved in creating a web-driven database.

Skill level 2	
2	
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4. Discuss the full benefits of creating a website with a web-driven database for a business or company.

Skill level 4	
4	
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5. Explain the purpose of validating websites.

Skill level 3	
3	
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SECTION FIVE: COMPUTER PROGRAMMING

Computer Programming is vital in today's digital world, as it enables us to create and control technologies, solve complex problems, and drive innovation. It's a key skill for turning ideas into reality in this modern age.

1. Perform the given arithmetic operation in binary.

1101
x101

Show your work here

Skill level 2	
2	
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2. Design the basic electrical circuit of the given truth table using logic gates with inputs **A** & **E** and output **F**.

A	E	F
0	0	1
0	1	1
1	0	1
1	1	1

Skill level 3	
3	
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3. Programming errors help developers quickly troubleshoot and improve their programs.
Explain the different types of programming errors.

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Skill level 3	
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SECTION SIX: MICROPROCESSOR PROGRAMMING

Good understanding of High-level languages and machine code is a key requirement of computer programming.

1. Explain how a program written in high-level language is changed into machine code.

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Skill level 3	
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2. State the importance for an embedded device to be controlled by an error-free software.

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Skill level 1	
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3. Discuss the economic importance of programmable microprocessors used in embedded devices.

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SECTION SEVEN: SAFE PRACTICES IN ICT

There are known threats to ICT systems and users that continue to affect all of us.
To protect users, there are various methods, but the most basic is to use strong, unique passwords. A password manager can help manage and secure these passwords.

Skill level 1	
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1. Name a possible threat to ICT systems posed by employees.

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2. Outline the threats posed by hackers to a computer system.

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Skill level 2	
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3. Outline the effects of viruses on your school's ICT systems.

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Skill level 2	
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4. Explain the issues arising from the widespread use of online identity on platforms like Facebook.

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Skill level 3	
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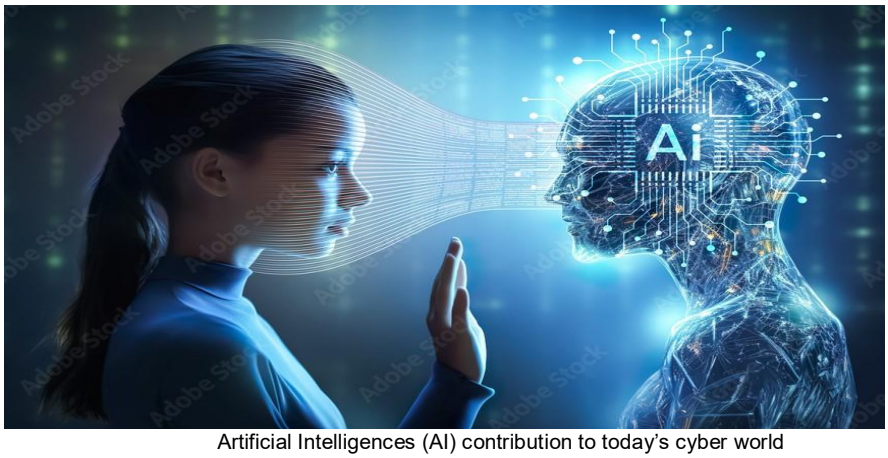
SECTION EIGHT: **SOCIAL ISSUES**



Artificial Intelligences (AI) contribution to today's cyber world

AI plays a big role in today's cyber world, especially with the growing concerns of Cyber-crimes.

1. Define Cyber – crime.

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Skill level 1	
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2. Discuss some of the key efforts taken by Tonga to fight and combat Cyber-crimes.

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Skill level 4	
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SECTION NINE: ENVIRONMENTAL ISSUES

E-waste is a big problem because it harms the environment, especially when it's burned or dumped. We need to find ways to manage e-waste better and use sustainable technology.

Importance of recycling

1. Outline some of the environmental concerns when burning ICT waste.

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Skill level 2	
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2. Explain how technology can be used to solve environmental problems caused by ICT.

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Skill level 3	
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3. Define sustainable technology.

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Skill level 1	
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